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Appln No.

Amndt date December 5, 2005

Reply to Office action of September 6, 2005

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Currently Amended) A computer implemented method for providing production optimization of reservoir completions having a plurality of completed intervals via available production analysis and production logging data which provides a quantitative analysis procedure for reservoir and fracture properties using commingled ~~reservoir~~ reservoirs, comprising the steps of:
  - a. measuring pressures for specific zones in a reservoir;
  - b. selecting a traverse model;
  - c. computing midzone pressures using the traverse model;
  - d. comparing the computed midzone pressures with the measured pressures;
  - e. modeling the bottomhole pressure of the reservoir based on the traverse model;
  - f. comparing the computed pressures with historic data; and
  - g. determining and selecting a recompletion process for maximizing zone-by-zone production.
2. (Original) The method of claim 1, including the step of performing an economic evaluation to determine the value of the selected recompletion process.
3. (Original) The method of claim 1, wherein the comparison step includes accepting the comparison if the computed midzone pressures are within a predefined tolerance of the measured pressures and rejecting the comparison if the computed midzone pressures are outside of the predefined tolerance.

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4. (Original) The method of claim 3, wherein upon rejection the selecting step and the computing step and the comparing step are repeated until acceptance is achieved.
5. (Currently Amended) The method of claim 1, wherein the reservoir is separated ~~in-to~~ into defined intervals from top to bottom, each having a top point, midpoint and a bottom point, and wherein the wellbore pressure traverse is computed using the total reservoir commingled production flow rates to the midpoint of the top completed interval.
6. (Original) The method of claim 5, wherein the fluid flow rates of the wellbore between the midpoint of the top and middle completed intervals are computed using the total fluid phase flow rates of the commingled reservoir minus the flow rates from the top completed interval.
7. (Original) The method of claim 6, wherein the pressure traverse in the wellbore between the midpoints of the middle and lower completed intervals is computed using the fluid phase flow rates that are the difference between the commingled reservoir system total fluid phase flow rates and the sum of the phase flow rates from the top and middle completed intervals.
8. (Original) The method of claim 1, wherein the flow rate and pressure traverse computation in the computation step are performed in a sequential manner for each interval, starting at the wellhead and proceeding to the deepest completed interval.
9. (New) A computer implemented method for providing production optimization of reservoir completions having a plurality of completed intervals via available production analysis and production logging data which provides a quantitative analysis procedure for reservoir and fracture properties using commingled reservoirs, comprising the steps of:
  - a. measuring pressures for specific zones in a reservoir;

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- b. selecting a traverse model;
  - c. computing midzone pressures using the traverse model;
  - d. comparing the computed midzone pressures with the measured pressures;
  - e. modeling the bottomhole pressure of the reservoir based on the traverse model;
  - f. comparing the computed pressures with historic data;
  - g. determining and selecting a recompletion process for maximizing zone-by-zone production; and
  - h. performing an economic evaluation to determine the value of the selected recompletion process.
10. (New) The method of claim 9, wherein the comparison step includes accepting the comparison if the computed midzone pressures are within a predefined tolerance of the measured pressures and rejecting the comparison if the computed midzone pressures are outside of the predefined tolerance.
11. (New) The method of claim 10, wherein upon rejection the selecting step and the computing step and the comparing step are repeated until acceptance is achieved.
12. (New) A computer implemented method for providing production optimization of reservoir completions having a plurality of completed intervals via available production analysis and production logging data which provides a quantitative analysis procedure for reservoir and fracture properties using commingled reservoirs, comprising the steps of:
- a. measuring pressures for specific zones in a reservoir;
  - b. selecting a traverse model;
  - c. computing midzone pressures using the traverse model;
  - d. comparing the computed midzone pressures with the measured pressures;
  - e. modeling the bottomhole pressure of the reservoir based on the traverse model;
  - f. comparing the computed pressures with historic data; and

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g. determining and selecting a recompletion process for maximizing zone-by-zone production, wherein the reservoir is separated into defined intervals from top to bottom, each having a top point, midpoint and a bottom point, and wherein the wellbore pressure traverse is computed using the total reservoir commingled production flow rates to the midpoint of the top completed interval.

13. (New) The method of claim 12, wherein the fluid flow rates of the wellbore between the midpoint of the top and middle completed intervals are computed using the total fluid phase flow rates of the commingled reservoir minus the flow rates from the top completed interval.
14. (New) The method of claim 13, wherein the pressure traverse in the wellbore between the midpoints of the middle and lower completed intervals is computed using the fluid phase flow rates that are the difference between the commingled reservoir system total fluid phase flow rates and the sum of the phase flow rates from the top and middle completed intervals.
15. (New) The method of claim 12, wherein the flow rate and pressure traverse computation in the computation step are performed in a sequential manner for each interval, starting at the wellhead and proceeding to the deepest completed interval.